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10. The ultrafast diode of claim 9, further comprising:
 a first oxide layer formed on walls and a bottom of said first
 trench such that said first well is electrically isolated
 from said first conductive material within said first
 trench; and
 a second oxide layer formed on walls and a bottom of said
 second trench such that said second well is electrically
 isolated from said second conductive material within
 said second trench.
11. The ultrafast diode of claim 9, further comprising:
 a second metallization layer adjacent to said substrate.
12. The ultrafast diode of claim 9, wherein said first dopant
 type comprises an n-type dopant.
13. The ultrafast diode of claim 9, further comprising:
 a second epitaxial layer of said first dopant type located
 between said substrate and said first epitaxial layer,
 wherein said substrate is more highly doped than said
 second epitaxial layer, and wherein said second epitaxial

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- layer is more highly doped than said first epitaxial layer,
 and wherein said substrate is doped with said first dopant
 type.
14. The ultrafast diode of claim 9, further comprising:
 at least one remotely located contact region coupled to said
 first well, said second well, and said first metallization
 layer.
15. The ultrafast diode of claim 9, further comprising:
 a Schottky barrier located between said first metallization
 layer and said first semiconductor layer.
16. The ultrafast diode of claim 15, further comprising:
 a PiN area, wherein a ratio of area of said Schottky barrier
 to said PiN area is approximately greater than or equal to
 one.
17. The ultrafast diode of claim 9, wherein the conductive
 layer is a titanium silicide (TiSi₂) layer.

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